RJIL/TRAI/2016-17/0968
31st October, 2016

Shri Arvind Kumar,
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New Delhi 110 002

Subject: **Counter Comments on TRAI's Consultation paper on Review of Interconnection Usage Charges (Consultation Paper No.17/2016)**

Dear Sir,

This is in continuation to our letter No. RJIL/TRAI/2016-17/876 dated 17th October 2016. Please find enclosed herewith RJIL's counter comments on the submissions made by other service providers.

As submitted earlier, Reliance Jio Infocomm Limited (RJIL) has appointed internationally renowned telecommunication expert firm M/S Detecon International, Germany to provide their independent opinion on the paper taking into account Indian telecom landscape, economic principles and international best practices. Their report had been also submitted along with our submission to the Authority vide RJIL's letter No. RJIL/TRAI/2016-17/876 dated 17th October 2016.

M/S Detecon International was also engaged by RJIL to analyse the comments submitted by others in the consultation process and provide their counter comments. Counter comments by them are enclosed for kind consideration of the Authority.

Thanking you

Yours sincerely,
For **Reliance Jio Infocomm Limited,**

Kapoor Singh Guliani
Authorised Signatory

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Encl: As above.

RELIANCE JIO INFOCOMM LIMITED (RJIL) COUNTER COMMENTS ON TRAI'S CONSULTATION PAPER ON 'REVIEW OF INTERCONNECTION USAGE CHARGES' (Consultation Paper No. 17/2016 Dated 5th August 2016)

1. At the outset, we submit that we do not agree with the comments, assertions and rationale put forward by Bharti Airtel Limited, Vodafone India Limited and Idea Cellular limited ("the three operators"). As these operators have only sought to protect their individual interests through their comments and their comments are bereft of any understanding of the technological changes, international experience of falling IUC and a movement towards Bill and Keep (BAK) regime.

2. The incumbent three operators state that the current consultation is a **premature Review** and to initiate the review only in FY 2017-18 and implement the changes, if required, at the beginning of FY 2018-19. **Therefore, the present consultation process should be postponed by at least 6 to 9 months (Airtel).** We would like to submit that given the time consuming process (6 months+) taken to conclude the consultation for review a two month head start is not material change from the time frame as suggested in the 23rd February 2015 IUC regulations.

3. We also would like to highlight the preposterous attribution of Idea Cellular that the "BAK regime" or "reduction of IUC for wireless traffic being proposed is an effort to subsidize a new entrant". This statement casting aspersions on the Authority is highly condemnable. One can understand that this statement only reflects the fear of competition and the need to keep Idea Cellular subsidised with continuing IUC charges when it is not warranted. We strongly refute this statement, as time bound IUC review is a standing practice of TRAI since the beginning of implementation of the current IUC regime.

4. We reiterate that irrespective of technology deployed, the voice market in India both in terms of subscriber base and minutes of usage (MOU) has reached an inflection point of inelasticity and is in nominal growth path at the best. An industry which is already 20 plus years old, with more than 100 crore plus subscribers with inelastic voice volumes, **it is time to migrate from cost based models to a holistic and comprehensive framework where cost recovery and returns are left open to competitive mechanisms.**

5. We would also like to highlight that the Authority is mandated to take cognizance of fast evolving technologies that drive greater efficiencies in the operation of networks and have sustainable economic benefit in the medium to long run for the end consumer. Telecom services can't be viewed in isolation from technology. The underlying technology for the service delivery mechanisms significantly influence

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cost dynamics and such ultimate pricing and user benefits to end consumer can't be ignored.[1]

6. It is beyond doubt that as the expert regulatory body of the Indian telecommunications industry TRAI expressly reserves the power to review the regulations based on the present sector trends and policy objectives sought to be achieved for the interests of the consumers and promoting growth.

7. In continuation to RJIL's letter No. RJIL/TRAI/2016-17/898 dated 21st October 2016, we request the authority not to take into consideration COAI's comments as a representation of the Indian telecom operator's views, as all the member operators have individually submitted their comments and COAI's view point as operators' representative body for separate consideration has no relevance. As previously intimated, the views of COAI reflect the view of three incumbent operators namely: Bharti Airtel, Idea Cellular and Vodafone India.

8. The argument that present IUC is sub-judice and hence review cannot be undertaken have to be dismissed outright. There is no stay on either current IUC regime or the power of the regulator to review IUC periodically. In fact if this is the argument, then the recommendation filed by TRAI in the Hon'ble Supreme Court in year 2011 recommending Bill and Keep from 2014 onwards should be followed without any demur.

Specific comments: Our specific point wise comments are as below:

A. Bill and Keep (BAK) is compatible with Calling Party Pays (CPP)

RJIL reiterates that BAK regime is compatible with CPP regime and the comments by the three operators to the contrary are an incorrect representation. These operators have created many illusions to this effect, for instance Airtel stated that ***"The CPP regime requires 'Cost-based' termination charges and not 'Bill and Keep' regime"***

We are substantiating our rebuttal of such claims as detailed below:

i. The Body of European Regulators for Electronic Communications (BEREC – a working group of European national regulators established by European Parliament regulation as part of the Telecom Reform package- ***also selectively quoted by Vodafone***) published a common statement in 2010 that assessed which interconnection regime is appropriate as network technology converges and moves to an IP basis. The BEREC paper highlights the current trends and likely direction for future.

BEREC specifically stated that CPP and BAK are compatible[2]:

[1] *Federal Communications (FCC) order FCC 11-161 reference 11905 and National Broadband Plan at 142*

[2] "BEREC Common Statement on Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues"

"Retail billing mechanisms can be CPP structurally corresponding to CPNP in which the calling party bears all the cost of a call or RPP, in which the receiving party pays part of the call rather corresponding to BaK. Nevertheless these structural similarities do not preclude flexibility in combining different wholesale and retail regimes. (...) ***the use of a particular wholesale mechanism does not preclude application of different retail pricing regimes.*** *Both CPNP and BaK provide flexibility at the retail level to offer retail schemes based for example on minutes, bits, or as buckets of minutes or bits plans as well as flat rates."*

The BEREC paper also notes the **empirical evidence against the claim** often made by incumbent mobile operators that a reduction in the mobile termination rate (typically in response to large reductions in moving from FAC to LRIC in the EU) **will require raising prices for low usage users with net incoming calls,** leading to a lower overall mobile penetration rate. BEREC cited three empirical sources:

"It first is useful to look at the effect of the past decrease in termination rates. This decrease has been significant. Mobile termination rates have come down from above 20 eurocent to the current European average between 8 and 9 eurocents. ***This significant decrease has not led to higher prices of low usage offers and lower penetration and ownership. This is in contradiction with claims of mobile operators in the past that they would."***

ii. Even the European Commission has summarized the advantages often associated with BAK, as follows[3]:

"Given the two-sided nature of call termination, not all related termination costs must necessarily be recovered from the wholesale charge levied on the originating operator. Even if wholesale termination rates were set at zero, terminating operator would still have the ability to recover their costs from non-regulated retail services. Rather it is a question of how these financial transfers are distributed across operators in a way that best promotes economic efficiency to the benefit of customers."

B. Cost recovery is most effectively done through competitive mechanisms and BAK is not hindrance for rural adoption

The three operators have been insisting on cost based IUC model as a return enhancing tool and incentive for expanding networks. Idea in its comments stated that

"a cost based IUC regime which fairly compensates TSPs for the costs incurred on account work done in carrying off-net incoming calls is necessary to incentivize TSPs to both continue investing and expanding in rural hinterlands of the country."

[3] EC recommendations on the Regulatory treatment of FTR and MTR in EU

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Further, the three operators unequivocally state that the introduction of BAK will remove the incentive to deploy networks in rural and remote areas. They emphasize that the business case for an operator expanding into rural areas is particularly hampered if their current investments are not protected through an IUC linked support on a full cost basis including a benchmark return (cost of capital). In its comments Airtel stated:

"No incentive to deploy networks in rural and remote areas: "The population residing in rural and remote areas has a lower paying capacity and therefore, utilizes mobile connectivity mostly for incoming calls. In case the termination charge, which is already below cost is further reduced, the deployment of sites in these areas becomes financially unviable and disincentives investments in rural/ remote/ non-remunerative areas."

This argument is incorrect and fallacious on the following grounds:

i. To support the deployment of services by TSPs in rural/ remote/ non-remunerative areas, separate tools like USOF are available and there is no justification for incentivising such investments through termination charges payable by other TSP.

ii. The roll out obligations of the operators are not predicated upon any IUC linked incentive mechanism, and IUC can't be a floor price subsidy in a tariff forbearance and free market for return enhancement.

iii. Cost based IUC is appropriate only in nascent stages of market evolution (also where traditionally the market was single player and government dominated) and IUC is not a long haul incentive mechanism, cannot be a tool/guarantee for business/investment risk mitigation and ROCE maximization and the argument that a particular market segment potential (Rural) has less profitable profile is already factored as an inherent overall business risk.

iv. Cost recovery is most effectively done through competitive mechanisms and such recovery is always fair compensation as it is market driven, and BAK is the best available tool for such a recovery.

v. BAK methodology allows telecom service providers to recover the costs of providing service within their network from their own customers as an operator builds and operates network primarily to service both incoming and outgoing calls of its subscribers and to provide data services. Customers can then respond to pricing and other market signals to select the provider offering the best value for money. Thus, BAK is a cost-based methodology that employs competition and market pressure to determine the efficient cost recovery level rather than regulatory imposed cost determination.

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vi. Terminating network service is a natural bottleneck monopoly, and absent regulatory control, will result in the terminating operator either hindering the termination service and/or charging above competitive pricing *(as evident recently from the anti-competitive behaviour).*

vii. Regulatory cost setting attempts to replicate competitive outcomes is a time-consuming and costly exercise that is open to dispute, legal challenge and most importantly the discovery of fair price with selection of optimal cost elements.

viii. **It is important to note FCC's rulings in it's order FCC11-161 in the above context:**

*"**Bill-and-Keep Is Market-Based and Less Burdensome than the Proposed Alternatives**: Bill-and-keep brings market discipline to inter-carrier compensation because it ensures that the customer who chooses a network pays the network for the services the subscriber receives. Specifically, bill and keep methodology requires carriers to recover the cost of their network through end-user charges, which are potentially subject to competition. Under the existing approach, carriers recover the cost of their network from competing carriers through inter-carrier charges, which may not be subject to competitive discipline. Thus, bill-and-keep gives carriers appropriate incentives to serve their customers efficiently"*

"Bill-and-keep is also less burdensome ..... In particular, bill-and-keep reduces the significant regulatory costs and uncertainty associated with choosing such a rate, which would require complicated, time consuming regulatory proceedings, based on factors such as demand elasticities for subscription and usage as well as the nature and extent of competition. ....

Moreover, in setting any new inter-carrier rate, it would be necessary to rely on information from carriers who would have incentives to maximize their own revenues, rather than ensure socially optimal inter-carrier compensation charges"

ix. Further, the argument that in spite of 20 years of operations rural tele-density is ~50% is actually a counter argument, because if the cost based IUC charges for over 14-15 years have not incentivized these three operators to invest in the rural market, it would be preposterous to think that it would incentivize them now. The IUC recovery will always be used as a tool for creating bottlenecks, prolonging the hegemonies and an additional source of revenue and nothing else. As explained above, it has never been the incentive for rural roll out and it never will. In a competitive market the only incentive to roll out is the business case and BAK will in fact support this. And further the rural tele-density is more to do with selective expansion of business initially and unaffordable and non-transparent tariff's.

x. Especially in a forbearance tariff market, a cost based IUC essentially represents an artificial floor price hampering price innovation and service bundling and in

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turn hindering the ability to attract marginal and low-income users. This is not a desirable position if the intent is to expand tele-density in rural areas.

xi. Currently, the Indian mobile networks have almost balanced incoming and outgoing traffic and the imbalance is mainly with very few smaller operators. This was evidenced in the TRAI's report submission to the Supreme Court in its 2011 report and also the top operators own admission of almost balanced traffic.

xii. In fact IUC charge for Wireless to Wireless for this precise reason appears to be counter intuitive. As the Authority has rightly adopted BAK for Wireline to Wireline, Wireless to Wireline and Wireline to Wireless in order to promote rural adoption. BAK stands as the best approach even for Wireless to Wireless.

xiii. Also more effective methods of promoting national policy objectives of rural network deployment can be explored through an open, transparent and market neutral method, such as the USOF administered by the Department of Telecommunications.

xiv. On the stated concern that BAK would lead to networks being dominated by inbound calls is completely misplaced.

a. Under a BAK regime, it is unlikely that the best networks will become dominated by inbound calls, notwithstanding consumer preference to utilize multiple SIMs (*As commented by Airtel, India is witnessing a multi-SIM trend; is sign of maturity as is the trend globally)*. In fact, under BAK it is likely that inbound and outbound calls will be better balanced, as mobile network operators will not be able to earn regulatory arbitrage from the margin between network costs and the IUC. (*There are multiple existing plans from operators where CUG/On-net calls are not charged, apart from bundled packs offering unlimited voice calls and such special offers)*

b. The current retail plans represent complexity, plethora of tariffs and lack of transparency in India and is one of the main reasons for customers to swap networks and use multiple SIMs, in fact BAK will only help in simplification, while eliminating the IUC arbitrage trap.

c. Coverage and network quality is an important competitive advantage for mobile networks, with larger networks also benefiting from economies of scale and being able to spread out the fixed coverage costs across a wider subscriber base allowing them to offer lower retail prices. Since BAK requires network operators to recover their own network costs from their own customers, network operators will have competitive pressure to be more cost effective in their network deployment and operations.

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d. If customers are selecting networks on a per call basis, they will be selecting on the basis of price and network quality for both inbound and outbound calls. Not only do customers want to be able to receive calls, they will also want to make calls. Therefore, they are most likely to be making calls on the same network they receive calls in the majority of cases.

xv. **It is also pertinent to note the following from European Commission and FCC order in light of the above misconceptions of the dominant operators**

"underlying historical pricing policies for termination of traffic was the assumption that the calling party was the sole beneficiary and sole cost-causer of a call[4]."

"if the called party did not benefit from incoming calls, "users would either turn off their phone or not pick up calls.[5] This is particularly true given the prevalence of caller ID, the availability of the national do-not-call registry, and the option of having unlisted telephone numbers. More recent analyses have recognized that both parties generally benefit from participating in a call ... economic research finds that the most efficient termination charge is less than incremental cost, and could be negative.[6]

"We reject claims that bill-and-keep does not allow for sufficient cost recovery. In the past, parties have argued that a bill-and-keep approach somehow results in "free" termination. But bill-and-keep merely shifts the responsibility for recovery from other carrier's customers to the customers that chose to purchase service from that network plus explicit universal service support where necessary. Such an approach provides better incentives for carriers to operate efficiently by better reflecting those efficiencies (or inefficiencies) in pricing signals to end-user customers"

"To the extent carriers in costly-to-serve areas are unable to recover their costs from their end users while maintaining service and rates that are reasonably comparable to those in urban areas, ...service support, rather than intercarrier compensation should make up the difference. support explicit rather than implicit"

"Moreover, as carriers face intercarrier compensation charges that more accurately reflect the incremental cost of making a call, consumers will see at least three mutually reinforcing types of benefits. First, carriers operations will become more efficient as they are able to better allocate resources for delivering ..... bill and- keep will over time eliminate wasteful arbitrage schemes and other behaviors designed to take advantage of or avoid above-cost interconnection rates, as well as reduce ongoing call monitoring, intercarrier billing disputes, and contract enforcement efforts....."

"perhaps most importantly, we expect carriers will engage in substantial innovation to attract and retain consumers. New services that are presently offered on a limited basis will be expanded, and innovative services and complementary products will be

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4 *AT&T USF/ICC Transformation NPRM Comments*

5 *BEREC Common Statement*

6 *Benjamin E. Hermalin and Michael L. Katz, Network Interconnection with Two-Sided User Benefits*

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developed. For example, with the substantial elimination of termination charges under a bill-and-keep methodology, a wide range of IP calling services are likely to be developed and extended, a process that may ultimately result in the sale of broadband services that incorporate voice at a zero or nominal charge. All these changes will bring substantial benefits to consumers."

"A consequent effect of the existing intercarrier compensation regime is that it allows carriers to shift recovery of the costs of their local networks to other providers because subscribers do not have accurate pricing signals to allow them to identify lower-cost or more efficient providers. By contrast, a bill-and-keep framework helps reveal the true cost of the network to potential subscribers by limiting carriers' ability to recover their own costs from other carriers and their customers, even as we retain beneficial policies regarding interconnection, call blocking......"

C. Traffic imbalance is temporary phenomena in a matured voice market

i. The Indian telecom voice market is matured with Minutes of Usage (MOU) per month per subscriber hardly expanding. A new entrant at the best can only take churned voice customers from existing operators, which causes temporary operator specific traffic imbalance in a matured voice market specific.

ii. This phenomena is temporary and overall does not change the traffic or industry MOU, given the inelastic phase voice already had reached. [7]

iii. Customer profile and differentiated tariff plans are business strategies adopted by operators, they underline competition of the market, and not IUC cost determinants.

iv. Such heterogeneity is an inherent business risk and IUC charge as compensation mechanism in a stagnant and matured market is as good as competition fee to be paid by acquiring operator for customer churn to the customer losing operator in garb of incoming call.

v. FCC in its 2011 order *FCC 11-161*, 753 F.3d 1015 (10th Cir. 2014)[8] states that *"We adopt a bill-and-keep methodology as a default framework and end state for all intercarrier compensation traffic.* ***We find that a bill-and-keep framework for intercarrier compensation best advances the Commission's policy goals and the public interest, driving greater efficiency in the operation of telecommunications networks and promoting the deployment of IP-based networks".***

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[7] Bharti Airtel Chairman comment in interview to *ET "In the last 16 quarters, there is less voice growth and in some cases voice degrowth."*, TRAI indicators on average MOU per month per subscriber

[8] FC11-161, 2011 order was upheld by the U.S. 10th Circuit Court of Appeals against challenges

D. FAC cannot be the basis for determining IUC.

The responses from Bharti Airtel, Vodafone India and Idea Cellular stated that FAC should be the basis of setting the IUC and that spectrum costs should be included in the cost base.

Airtel in response to Q2 of the paper stated that *"FAC has the advantage of simplicity and is based on audited data, leaving no scope for disagreement or dispute. It also ensures that each cost element is clearly identifiable and included and relies on the actual data furnished by the operators. The termination charge for each operator should be calculated on the basis of their audited ASR data. To take care of inefficiencies, the data of outliers may be discarded for the determination of the IUC.* ***Further, while selecting an actual efficient operator, it is recommended that the Authority take into account the cost models for operators who meet certain minimum criteria of coverage in terms of both rural population and geographic coverage, i.e., DHQs/BHQs."***

This statement is both without evidence and misleading. In fact, the current consensus amongst economists and regulators is to move away from FAC based approaches towards BAK for interconnection precisely for lack of the above characteristics. While regulators that have studied the issue acknowledge the need to move to BAK, the preferred approach had been through a decrease in the regulated MTR over time. It is also worthwhile to note that most of the regulators globally are following Pure LRIC model with glide path to BAK.

i. **FAC is historic costing data and not relevant in a matured market with sufficient competition**:

a) Work done/Cost principle is followed in early stages of the industry where historically the government owned companies or single player had monopolistic control and new entrants were allowed with strong incremental market growth potential.

b) FAC is just an accounting tool which does not consider economics of scale, competition and non-linearity.

c) Economic benefits are not reflected in historical standards based costing where marginal cost benefits from volume, service mix and non-linearity are not considered for assessing the real economic value (each additional minute becomes cheaper to produce).

d) Precisely for these reasons and information asymmetry on costing, FAC is hardly followed or recommended in most of the developed and developing countries and the regulatory authorities have moved to LRIC, Pure LRIC or BAK.

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e) In a matured market for a new entrant, the historic costs are irrelevant. This means that there is a mismatch between the costs of a new entrant and the incumbents, at the advantage of the incumbents. With typically higher costs for incumbents, this implies that inefficiencies of incumbent operators are passed on to the interconnecting operators and the regulatory costs based on FAC are too high with too high IUC as a result.

f) As outlined earlier the Indian voice market is already matured and historic costing should not be considered.

g) In view of the inherent limitations of the FAC method, most regulators across the have already moved away from the FAC method. Even TRAI has abandoned FAC and has used LRIC / LRIC+ method while determining IUC charges. Therefore there cannot be any reason to revert back to FAC

h) Without prejudice to our earlier submission, in case the Authority still considers a cost based model for IUC as a glide path towards full adoption of BAK regime, it may consider **Pure LRIC** model.

ii. If a cost method has to be adopted Pure LRIC is the most preferred:

a) Without prejudice to RJIL's submission to adopt BAK regime for wireless to wireless calls as well, it is submitted that the estimates of mobile termination cost using LRIC method and LRIC+ method may have yielded nearly the same results in year 2011 (as filed in the Hon'ble Supreme Court on 29.10.2011) and in the year 2015, however, this cannot lead us to an inference that estimates of IUC arrived in the exercises of the year 2011 and 2015, could be put to use in the present exercise.

b) Pure LRIC is the better approach as it will maximise the benefits to consumers as it better promotes sustainable competition and is economically efficient.

   i. Is the cost standard most consistent with the economic literature.
   ii. Regards only efficiently incurred costs that would not be sustained if the service included in the increment was no longer produced (i.e. avoidable costs).
   iii. It only includes direct volume-sensitive costs of the given service, excluding all cost categories that are not volume sensitive (e.g. joint and common costs).This implies that changes in volumes does not cause an overcompensation of overhead and common costs

c) It is pertinent to state that while computing the MTC in the year 2015, TRAI had taken into account the cost of spectrum, as opposed to the computation of the IUC in 2011, where TRAI had not considered the

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spectrum cost. Similar termination costs being yielded for the years 2011 and 2015, despite adding the spectrum cost in 2015, leads us to the sole conclusion that the costs of components which are considered while computing IUC through LRIC method have reduced over the period of years. And that there is a requirement of running the various LRIC methods afresh using the information on subscriber, usage and network cost for F.Y. 2015-16 for estimation of IUC.

d) That being said, RJIL is of the opinion that spectrum costs have no bearing while computing the MTC and the costs incurred by service providers for acquiring usage rights for spectrum is not at all a relevant cost for termination charges, therefore, should not be considered, at all, while calculating termination charges. In the earlier regime wherein spectrum was bundled with the licence, entry fee was akin to the cost of acquiring the spectrum, and TRAI has not included entry fee as a relevant cost for termination charges. Therefore, this time also, TRAI should exclude the cost of acquiring spectrum in computing the termination charges. It is pertinent to state that even in the report dated 29.10.2011 submitted to the Hon'ble Supreme Court, wherein one of the method of calculation of MTC was inclusions of CAPEX and OPEX, TRAI had not included entry fee/ charges for acquiring spectrum paid by the service providers. Even internationally both Ofcom (UK) in 2011 and the European Commission in 2009 considered that spectrum costs should be excluded as they are not traffic sensitive, or (in an efficient market) are substitutable for traffic sensitive network equipment, and including spectrum costs would effectively be double counting.

e) In the current scenario, the service providers are acquiring liberalized spectrum, mainly for providing data services. It is further submitted that the spectrum is acquired by them to roll out the network to provide the services to their customers and to comply with the roll out obligations. As the spectrum procured through the auctions is liberalized spectrum and will be deployed by the operators predominantly for providing IMT advanced services, the impact of the spectrum cost on IUC for termination of a voice call is irrelevant. It is a sunk cost, and should not have been taken into account by TRAI for determination of termination charges.

f) Additionally, while running the LRIC model afresh, the Authority should consider the most efficient technology i.e. the hypothetical model should be based on the LTE/4G technology, wherein the per minute cost of voice minute comes at fraction of a paisa. The recent introduction of spectrum sharing/trading and change in the SUC may also be captured in the model.

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g) Nevertheless, TRAI should in all attempts move towards adoption of BAK regime for computing the mobile termination charges (MTC) for wireless to wireless calls.

iii. Reduction in IUC has created-Stress on profitability is misleading

a) In countries where BAK is active, such as the US, Canada, HK and Singapore, the mobile operators are profitable and have not faced financial problems.

b) It is worthwhile to note that the stress on profitability metrics, notional losses as being quoted by Idea are misleading.

c) There is EBITDA expansion, coupled with volume growth for overall Industry.

d) Substantial focus of investments had been data centric and the resultant depreciation, interest charges reduce their profitability.

e) This profitability stress is not resultant of reduction in IUC or will be because of moving towards BAK.

f) It is also pertinent to note that 2G networks were also used for narrow band internet access with limited incremental cost, while most of the spectrum enhancement was for data investments and 2G was also used as redeployment rather than coverage expansion as claimed.

g) This is evident from the investment presentations shared by Idea on its site, where the commentary and messaging is on the voice market maturity/consolidation and substantial investments are data focussed. Below are few such Idea performance and key financial trends as reported from Q2 FY16-17 presentation[9]. (Exhibits)

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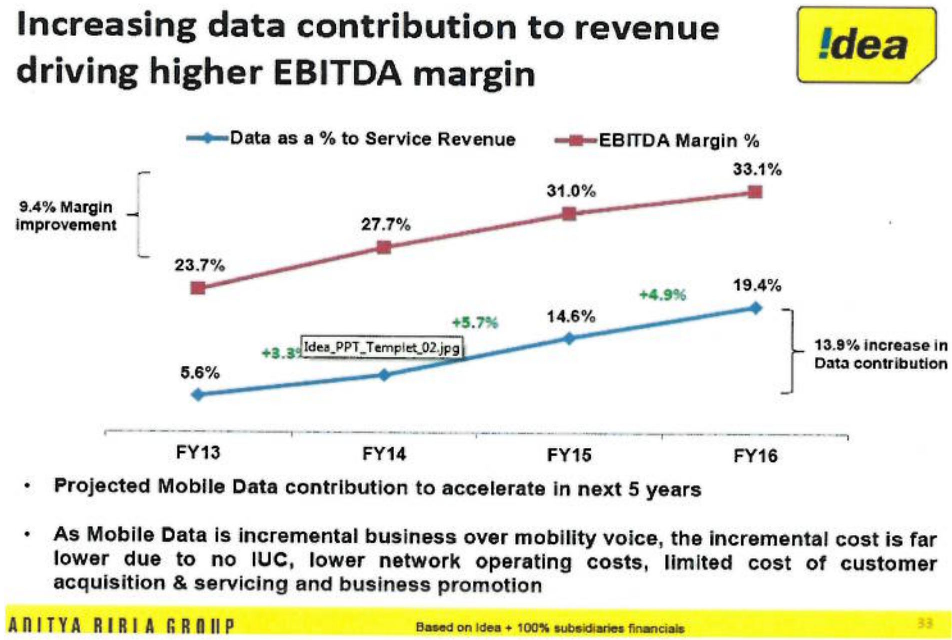
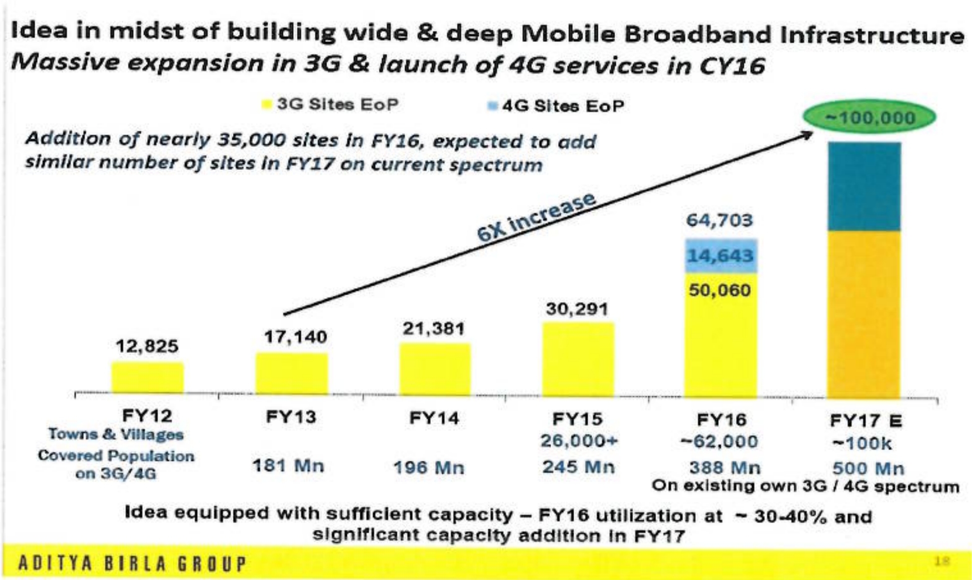
[9] http://www.ideacellular.com/investor-relations/results

Exhibits





E. Finally to summarise, the case for Bill and Keep (BAK) is not at all complicated. The three incumbent operators are trying to confuse and enjoy the subsidy of IUC to shore up their profits and have even gone to the extent of casting aspersions on the Authority to justify and continue IUC. In essence:

a. IUC as a concept is relevant only till a point of time where there is a monopoly or a duopoly and mostly run by the government and new operators are allowed, who because of the low tele-density are able to acquire new customers and the incoming traffic into the existing one or two operators is highly imbalanced creating network issues to service their own customers. In this case also it is relevant only till the competition and market matures.

b. The current competitive scenario in the telecom sector in India does not justify continuance of IUC due to the following reasons
    i. The market is highly matured with an overall tele-density of 82%
    ii. There is enough competition with top 5 players having presence of more than 15 years (80%+ market share and population coverage)
    iii. It has been acknowledged and the statistics also show, that the traffic between the dominant operators is almost symmetric. The small asymmetry is due to healthy competition and cannot be a reason to continue IUC.
    iv. In a free market especially when tariff is on forbearance, new competitors will keep on coming. The temporary asymmetry in the initial stages cannot be a reason for continuance of IUC
    v. As a matter of fact, if the existing operators can be as competitive as the new entrant and give same quality of service there is no need to worry about losing customers and traffic becoming asymmetric.
    vi. Thus the regulator or the government cannot bail them out, if they are not efficient and competitive.

c. There is no connection between IUC and rural telephony. It is preposterous to suggest that rural density will not improve if IUC is moved to regulated BAK

References

In addition to the regulatory decisions that considered BAK cited above, some of the other literature that discusses the benefits of BAK includes:

- *"BEREC Common Statement on Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues", June 2010*
- *"Mobile Termination charges: Calling Party Pays versus Receiving Party Pays", Telecommunications Policy, Vol. 30, Stephen C. Littlechild, 2006*
- *"The Future of IP Interconnection: Technical, Economic, and Public Policy Aspects, Final Report", Study for the European Commission, 29 January 2008, WIK-Consult*
- *"Efficient Inter-carrier Compensation for Competing Networks When Customers share the value of a call", Journal of Economics & Management Strategies, 12(2), 2003, P. DeGraba*
- *"Bill and Keep at the Central Office as the Efficient Interconnection Regime", OPP Working Paper Series, No. 33, FCC, December 2000, Patrick DeGraba*
- *"Interconnection in an NGN Environment", ITU/02, March 2006, Scott Marcus "On-net / Off-net Price Discrimination and 'Bill-and-Keep' vs. 'Cost-Based' Regulation of Mobile Termination Rates", 2008, David Harbord and Marco Pagnozzi*
- *Bill-and-Keep vs. Cost-Based Access Pricing Revisited", Economics Letters, 86(1),* 2005, U. Berger.

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Comments to Consultation Responses

for
Reliance Jio Infocom Ltd.

October 2016

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1 Introduction

On 5th of August 2016 the Telecom Regulatory Authority of India (TRAI) has issued a Consultation Paper on Interconnection Usage Charges. Detecon has submitted a position paper as a response to the consultation paper on the 17th October 2016.

Additionally, also various stake holders has provided a position statement and with this response Detecon provides its counter comments.

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2 Misinterpretations regarding BAK

2.1 Selective or deliberately misleading interpretations on CPP, RPP and BAK

In significant part of their responses to the Consultation paper No.17/2016 on Review of Interconnection Usage charges, incumbent operators try to compromise the nature and downplay the economic significance and applicability of BAK by intentionally making wrong statement and by means of fallacious and selective reasoning.

One of the most striking examples is when one of the operators, invents the term *unregulated BAK* and demands from TRAI to start referring to BAK this way. The operator arrives at the need for the newly invented term, by opening with a statement that... *Bill-and-keep regime is followed by operators when mutual traffic is symmetric and is only for ease of operation and settlement and based on mutual agreement.*

All three clauses of the statement are completely wrong or misleading:

First, there is no empirical evidence of any correlation between BAK introductions and eventual symmetry in domestic interconnect traffic. Should the traffic between all networks be already in absolute balance, then under the assumption of a symmetric termination charges the application of CPNP method will result in no effective payments between the operators, thus already replicating the effect of BAK. What would be the use of implementing BAK, then if its effects have been already enjoyed?!

However, in the second clause, the operator responds to the question above with very simplistic explanation – *for ease of operation and settlement*. We must point out that, the benefits of BAK, as elaborated in our response to the Consultation are manyfold and span far beyond the *ease of operation*. We must state again that interconnect symmetry is neither necessary nor sufficient condition for intoduction of BAK.

However, that the last clause that BAK is based on mutual agreement is correct, as far as this holds true for any Interconnect agreement with or without regulatory supervision.

By introducing terms like *regulated* and *unregulated* BAKs, the operator most likely refers to the opportunity given to operators in some BAK countries to negotiate directly interconnect agreement prior to resorting to the regulatory stipulated regime. However, the conclusion drawn from the existence of such opportunity that BAK can be achieved only absolutely voluntarily between the operators is deeply flawed.

Furthermore, the operator shares their understanding that... *there is no country across the globe where the Telecom regulator has imposed Bill-and-keep regime with CPP.*

Another established operator also reads... *There is no country in the world that has mandated Bill & Keep by regulatory fiat.*

To counter those speculations and further creative mismatch of features of the different IUC regimes we must summarize the benefits and drawbacks of CPP, RPP and BAK before putting the analysis into the context of the contemporary Indian telecom industry.

It is widely accepted that despite its merits CPP has severe deficiencies, the main being:

- High termination charges and respectively high call prices and low usage,
- Intrusive and costly price control and regulation
- Questionable efficiency – prices still well above costs
- Limited welfare benefits, handsets still subsidized, etc.

RPP may effectively avoid all these problems as it provides for:

- Zero termination charges, low unit prices, high usage
- No need for intrusive and costly price controls
- Prices are at competitive levels
- No adverse effect on mobile penetration

However, RPP imposes significant challenge of overcoming the resistance of paying for received calls. Here comes BAK – it has all of the advantages of RPP but without the downside of charging for received calls. To counter the continuous speculations of BAK opponents that BAK was incompatible with CPP it must be pointed out that BAK is applicable in both RPP and CPP regimes, leaving discretion to operators on how to charge own customers and how to recover termination costs. Even in RPP countries, many operators are offering free incoming calls as part of their service offerings thus effectively implementing CPP.

2.2 BAK as natural regime for Interconnecting IP networks

In his reponse one of the incumbent operators is challenging the solid argument from page 21, paragraph 2.10 in the Consultation paper No.17/2016, which reads: ... *In IP–based networks, traditionally, there has been no custom of levying termination charges for the traffic arriving in a particular network; BAK is the natural regime in the public Internet.*

The operator is speculating superficially that since the two beneficiaries of a IP connection pay to their respective network operator this should be *Not BAK, as stated in the consultation paper.* Actually, the two beneficiaries of the connection pay to their network providers fixed fee for Internet access with agreed capacity (uplink and downlink), hence every operator is billing and keeping a fee from their respective customers – no payments between the peering network operators arise from the transaction and no incremental charge is inflicted on the recepient of the connection (nor on the originator).

Packet networks like public IP networks that build the Internet, have been long interconnected under peering agreements similar to BAK, where huge traffic asymmetries - downlink and uplink - are very common. Economic reasoning behind is the general impossibility to allocate the benefits of a connection between the originator and the recepient. In fact, the Content – the substance that generates outbound traffic - plays key role in negotiating commercial interconnect agreements between public IP networks.

As TRAI, rightfully, continue: ... *Moving towards BAK will encourage deployment of IP-based telecom networks. Since IP-based networks are poised to be the networks of the future for providing telecom services, a BAK regime may be seen as a natural progression in line with the development of technology.*

3 Interconnect traffic asymmetry

3.1 Asymmetry may be intrinsic but how severe is the situation?

It is generally accepted that the Indian market is characterized by higher interconnect traffic asymmetry between the established operators and the smaller and later entrants. However, as evident from the data provided by the second and third operator in their responses, the announced levels of asymmetry are hardly indicating any peculiarity. Indeed, the second leading operator declares 57%/43% In/Out off-net ratio and the third – 52,3%/47,7% In/Out off-net ratio. Such levels of asymmetry can be found in any mature and emerging markets and we are not aware of any markets with perfectly balanced traffic between the operators.

3.2 Temporary asymmetry of market entry

In their responses, market share leaders premise arguments against BAK and lower IUC on allegedly market-abusive entry of a new player, resulting in extraordinary asymmetry of the interconnect traffic with that operator.

First, it must be stated, that providing allegedly abnormally high levels of the asymmetry based on the first few weeks from the service launch is selective and downright misleading. Any market entry is reasonably expected to start with high level of asymmetry. However, that phenomenon has a temporary nature and asymmetry inevitably diminishes over time. We already elaborated on the nature and the mechanics of the process in our response to the consultation paper.

In conclusion, new market entries cannot exclude BAK or lower IUCs on reasons that they may cause temporary asymmetries in Interconnect traffic.

4 Technology and Market Innovation Rationale

4.1 Technology as a regulatory impetus

In their responses, all three market share leaders are reasoning against the need and the rational behind the present Consultation exercise based on statements that:

- Technologies development cannot trigger regulatory changes, and are irrelevant, and
- No technological changes have been taking place since the last consultation on the subject matter or that technological changes are not significant to be considered a regulatory impetus,

Both the type of claims, are incorrect and contradict with other positions and reasoning of those same operators further elaborated in their responses. First, technological development can be and are a powerful driver for regulatory changes in every telecom market. In fact, technology disruptions lead to new customer use cases and new products and services, which in its turn can translate into market shifts and industry restructuring. This would ultimately necessitate new regulatory measures and policies. In fact, in their responses, those same operators are referring to a *first 4G-only new market entrant* as both technology and market disruptor – claims for interconnect traffic abnormalities several weeks after the launch (?!), accusations for free voice services, questioning the maturity of VoLTE technology, etc.

Second, about the lack or insignificance of the technological changes, in their responses operators admit that two out of the three leading operator are also rolling nation-wide 4G networks. Consequently, the question is not whether the technology changes are ongoing or not but about the rate of adoption and the level of investments in new technologies. In this view, BAK as an interconnect regime can only accelerate the adoption of the newest technologies in India.

4.2 4G and VoLTE efficiency

Another set of arguments of the opponents of BAK and lower IUCs are trying to lend credibility from the widely recognized common challenges before the Indian mobile telecom market like:

- Relatively low tele density, especially in rural areas
- Still unrealized potential of mobile Broadband, especially 3G/4G
- Low 4G coverage, 2G only rural areas
- Low smartphone proliferation, especially 4G

However, there is not a single argument how cost based methods and higher IUC will be able to address these deficiencies. On the contrary, BAK and lower IUC are more likely to yield better results in coping with these challenges as supported by economic theory and empirical evidence.

In conclusion, BAK and lower IUC would further reduce retail prices and encourage usage thus making communication services more accessible and affordable for larger parts of the Indian society. In the same time, BAK and lower UIC will encourage investment in newest and most efficient technologies and would facilitate the proliferation of next generation consumer devices.

4.3 Rural coverage and tele density – 2G Legacy

Another set of arguments of the proponents of cost based methods and higher IUC originate from the presumed dependency of large portion of the population on legacy 2G technologies due to:

- Limited devices – smartphone proliferation at 20-25%,
- Substantial 2G only areas – 3G/2G site density at 60% (2016), 4G/2G at 22% (2016), estimated 300-400mn people still 2G bound, as reported by one of the leading operators

Arguments are structured under the following reasoning: There are huge areas where 2G is the only available network or population is too poor to afford 3G/4G devices. Since the population is predominantly poor, their usage profile is predominantly call-receivers. Consequently, the best way to finance the respective 2G network maintenance and further investments (?!) would be to charge the competitor higher IUC for the off-net calls received by this population.

This line of reasoning is absolutely flawed. First, why should new entrant finance via higher IUC any incumbent operator´s legacy network, instead of not investing and building its own presumably last-generation network? Both operator are subject to regulatory coverage obligations and QoS requirements, imposed and controlled by the regulator. Second, since the legacy 2G network has been built some 10-15 years ago, it can reasonably be expected that such old network should have already been substantially depreciated and thus much cheaper in economic sense. In the same time, however, since the network has long been operational (achieving set coverage and capacity) it should needs little additional investments, aside from maintenance.

In fact, some arguments are going even further and imply abandoning coverage obligations and respective QoS requirements, which every licensed operator should respect.

4.4 Denying the positive effects of BAK on Wireline networks

One of the incumbent operators attacks the argument of TRAI on page 13, paragraph 2.14 and 2.15 of the consultation paper that ... *Authority initiative to boost the wireline telephony and wireline broadband segments by way of prescribing BAK regime for fixed termination charges (i.e. wireless to wireline and wireline to wireline) as well as Mobile termination charges from wireline (i.e. wireline to wireless) has been a success so far.*

Operator´s argument is that the number of the wireline subscribers continues to decline even after the prescription of BAK for traffic originated from or terminated in wireline networks and that the reduction of the rate of decline of wireline subscribers is too small *to denote improvement*. Let us make it clear, that Fixed-to-Mobile Substitution is a ubiquitous phenomenon – both in mature and developing markets - and is general driven by powerful factors worth to be examined separately. It is evident, however, from the data set provided by TRAI that the rate of decline in India decelerated after the introduction of BAK from -1,9mn in March 2015 to -1,4mn in March 2016, reversing a negative trend of acceleration from -1,7mn in March 2014 to -1,9mn in March 2015. Consequently, TRAI´s argument holds true despite operator´s attempt of trivializing the outcome.

Furthermore, the same operator continues by denying any correlation between broadband wireline subscriber base and BAK regime under the argument that the latter pertains only to voice services. However, this line of reasoning deliberately neglects the obvious correlation between wireline voice and wireline broadband, which are often marketed together in wireline (fixed) service bundles. In fact, the more competitive the wireline voice packet in a fixed bundle, the more attractive the fixed service bundle. Thus, the reportedly high growth figures in wireline broadband can be attributed to the introduction of BAK, of course among other factors too.

4.5 Denying the positive effects of the last reduction of MTC on the retail prices

One of the incumbent operators attacks the data set and the interpretations of TRAI on page 16-17, paragraph 2.24 and 2.25 of the consultation paper that *As can be seen from the above table, the retail tariff for voice calls for GSM service, which was hovering in the range of 0.50 per minute to 0.51 per minute in the F.Y. 2013-14 and F.Y. 2014-15, started declining by 0.01 per minute in each successive quarter after the lowering of domestic termination charge through the Telecommunication Interconnection Usage Charges (Eleventh Amendment) Regulations, 2015 w.e.f. 01.03.2015. It is worthwhile to mention that the AGR of access service segment has demonstrated an annual growth rate of 11.6% during the F.Y. 2015-16. One may conclude on the basis of the above facts that the lowering of domestic termination charge in the year 2015 did not result in the waterbed effect4 in the telecommunication services sector. Instead, it resulted in lower retail tariffs without, in any way, jeopardizing the overall revenue of the TSPs. Thus the lowering of domestic termination charges through the Telecommunication Interconnection Usage Charges (Eleventh Amendment) Regulations, 2015 was essentially a win-win proposition for both, the TSPs as well as the consumers.*

The operator initially enumerates factors that could contribute to reduction of the retail prices in general. Then they extend the initial data set covering June, 2013 to March, 2015 back to include period from June, 2010 in an attempt to show that retail prices decline in general in the whole extended period. Then the operator questions the correlation between MTC and retail prices and suddenly makes a conclusion that... *lower tariffs are not achieved due to lower IUC.*

As general rule of thumb lower MTC lead to lower retail prices. There is solid economic background behind and extensive international empirical evidence both in mature and emerging markets. One cannot deny that only on the grounds of existence of other factors also contributing to lower retail prices. Moreover, the initial dataset provided by TRAI clearly depicts a decline in prices from 0,51 to 0,48 after the introduction of the present MTR level. The statement on AGR increase is consistent too, and may be explained by the fact the lower IUC typically encourages consumption and particularly MoU, which, as evident from the TRAI data, more that offsets the reduction of the unit retail prices.

This is evident in the conclusion made by TRAI in page 16-17, paragraph 2.26 that... *the twin factors viz. (i) lowering of domestic termination charge resulted in overall good for the telecommunication services sector in the past one year; and (ii) the need to give a nudge to the sector for deploying more efficient network technologies, together suggest a need for adoption of BAK regime.*

5 IUC Effects on industry competitiveness

5.1 New entrant Disruptions

One of the established operators, expresses suspicions that *Now a "BAK regime" or "reduction of IUC for wireless traffic" being proposed is an effort to subsidize a new entrant who has declared free voice services for life by forcing existing wireless mobile operators to pay for its actions by carrying calls from its network at much below actual cost of 31.5 paise per minute and bear 17.5 paise per minute loss.*

New entrant tariffs and bundles are considered innovative and attractive, however it is well known fact that product bundling is common practice and in this particular case the voice is bundled without additional or separate charges to the customer. This is a competitive practice and is partially recognized further on: ...*"In any case a TSP is free to offer attractive prices to its customers – we just want that this should not be paid for by other TSPs through a regime of below cost IUC resulting in cross subsidization."*

The premise of cross-subsidization by IUC in favour of new entrants seems counter intuitive. On the contrary, based on some responses of the proponents of higher IUCs, one may conclude that the leading operators are seeking subsidization of their mobile networks expansion and maintenance at the expense of new entrants through inflated IUCs.

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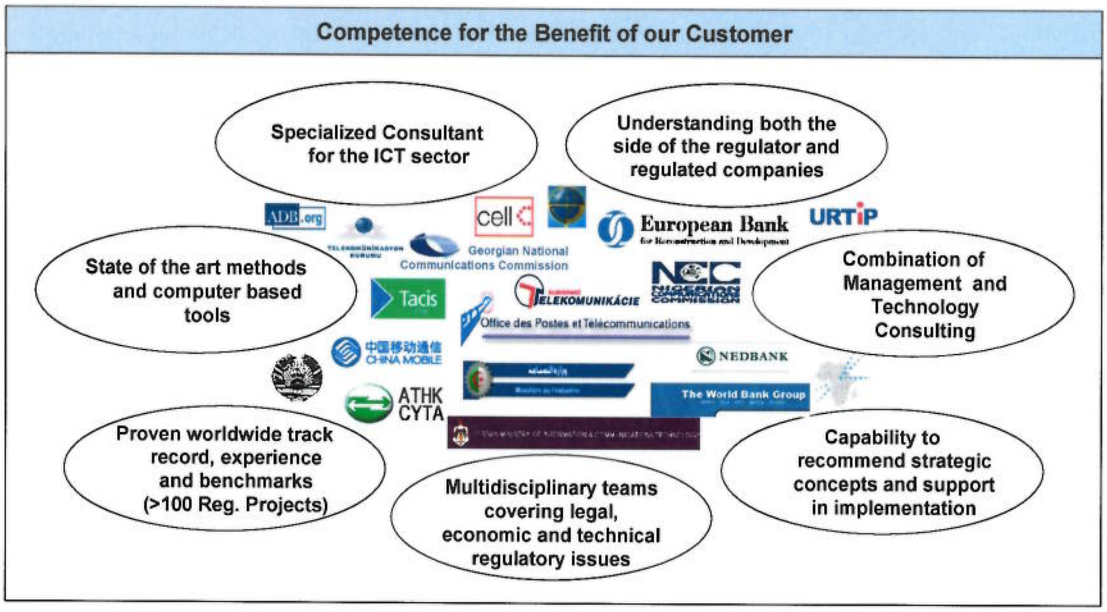
6 Detecon at a glance

Detecon International is one of the leading Management Consulting is a globally present consulting company, specialized on ICT topics and combining classical management consulting with outstanding technological expertise We are a subsidiary of Europe's largest carrier, Deutsche Telecom. With more than 1000 consultants in 13 offices world wide we produce a turnover of about €165m per annum.

Among our clients are major industrial producers and service providers, but 85% of the value is created by Telcos and Regulatory Authorities. Detecon is able to provide interdisciplinary and highly qualified teams of regulatory consultants specialized in all the services to be rendered.



Detecon also provided consulting services on accounting separation and LRIC modeling for over 10 years and has become a trusted advisor for many clients in this field.

Carriers in the last five years (LRIC/AS clients)

Selected regulators last five years (LRIC/AS)

For more information please follow

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7 Abbreviations

BAK	Bill and Keep
BULRIC	Bottom-Up LRIC
CCA	Current Cost Accounting
CPNP	Calling Party Network Pays, i.e. the network operator initating the call pays for the entire call
CPP	Calling Party Pays
FAC	Fully Allocated Costs
HCA	Historic Cost Accounting
IP	Internet Protocol
KPIs	Key Performance Indicators
LECs	Local Exchange Carriers
LRIC	Long Run Incremental Costs
LTE	Long-Term Evolution
MHz	Mega Hertz
MNOs	Mobile Network Operators
MTR	Mobile Termination Rates, i.e mobile interconnection usage charges
NGA	Next Generation Access networks, i.e. primarily IP packet based access networks
NGN	Next Generation Networks, i.e. primarily IP packet based networks
NRA	National Regulatory Authority
PSTN	Public Switched Telephony Networks
SIM	Subscriber Identity Module
TRAI	Telecom Regulatory Authority of India
VoIP	Voice over IP
WACC	Weighted average cost of capital